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United States Department of Agriculture,

DIVISION OF AGROSTOLOGY.

SALTBUSHES.

AUSTRALIAN SALTBUSHES.

A considerable demand has arisen in the grazing regions of the West during the last decade for seeds of the various species of Australian saltbush. These saltbushes are nearly all plants of the salsolaceous, or pigweed, family, which botanists for purposes of exact knowledge call the *Chenopodiaceæ*. There are over one hundred species of this family in Australia, and the ones which have come into prominence as desirable forage plants grow wild upon the low plains and in the broad river valleys of the interior of that continent. They are plants which are specially adapted by nature for growth in arid and semiarid regions where the annual rainfall is small and torrential, and where there are long periods of months and perhaps years when no rain falls. Many of them grow on alkaline soil and along the margins of brackish or stagnant pools, and thrive where grasses and other more nutritious but less hardy forage plants will not grow. They are annuals, with small fleshy leaves and rigid harsh stems, and are protected by various

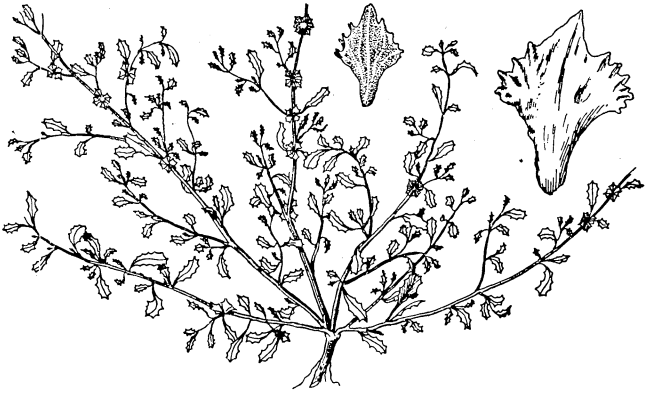

FIG. 1.—Australian saltbush (*Atriplex semibaccata*).

natural devices from the drying influence of the fierce summer heat. The leaves and stems are covered with a coating of hairs, or are mealy like the leaves of the common pigweed of cultivated lands, or the leaves and stems are mucilaginous like those of cactus. In common with all other plants native of alkaline or salty soils, they contain considerable quantities of salt and other soluble constituents of the soil. All of these characteristics tend to protect the foliage and prevent the evaporation from the leaves of the moisture which is necessary to the continued existence of the plant. Again in common with plants indigenous to semidesert regions, each individual produces an immense quantity of seed to insure reproduction of the species under the very unfavorable conditions which prevail.

FIG. 2.—Australian saltbush (*Atriplex leptocarpa*).

With the possible exception of portions of California and Arizona, the range of country in which the saltbushes grow wild is relatively much warmer than the grazing regions of the United States. There is never any snow and rarely frost, the summer heat is more intense, and the periods of drought longer.

AMERICAN SALTBUSHES.

The most valuable saltbushes are species of *Chenopodium* and *Atriplex*. They are not cultivated plants and are not any better adapted to the grazing regions of the United States than our own wild species of the same genera. There are over thirty different kinds of American saltbush, only they are not so designated, in the region extending from Montana, Colorado, and western Texas to the Pacific coast. Nearly all of these are recognized by herders and graziers as furnishing considerable forage for sheep and cattle, and many of them have acquired local importance under such names as sweet sage, white sage, or winter fat. In dry seasons and during severe winters they are supplementary to the native grasses. Their abundance adds value to the ranges.

NOT A CULTIVATED FORAGE PLANT.

These saltbushes are not cultivated plants. In many portions of Australia they have become well nigh extinct through the same causes that are leading to the extermination of our own native forage plants and grasses—the overpasturing of the ranges and the consequent destruction by too close feeding and by trampling. The introduction into foreign countries of saltbush seed has been accomplished mainly through the instrumentality of public-spirited scientists, notably through

the efforts of Baron Ferdinand von Mueller of Melbourne. Some ten or more years ago, large quantities of seed were collected and sent by him to South Africa, and the world now beholds the anomalous state of affairs of Australian farmers buying Australian saltbush seed from South Africa.

GENERAL CONSIDERATIONS.

Many, if not all, of the American *Atriplex* and *Chenopodium* species, especially those that are natives of the great ranges, will become extinct along with some of our best pasture grasses, if an effort is not made to conserve and disseminate them. We know that they are valuable. We know that they are eaten by all kinds of stock. We know that they are thoroughly acclimated. They grow on the alkali plains, along the margins of brackish ponds, and on sterile lands. They are perfectly adapted to situations where better forage plants and grasses will not grow. They are natives of the vast arid and semiarid uplands, which through absence of water will never be used for anything but cattle and sheep ranges. They are better fitted to soil and climatic conditions as they now exist with us, and they are less liable to become weeds in cultivated lands. Saltbushes are valuable only as supplementary forage plants. They will not take the place of grasses for continuous pasturage. When mixed with native grasses of a range, they act as a bitter tonic to increase the appetite and improve the general condition of the grazing animals. But there is sufficient nourishment in them to sustain life when through drought or other causes there is no grass.

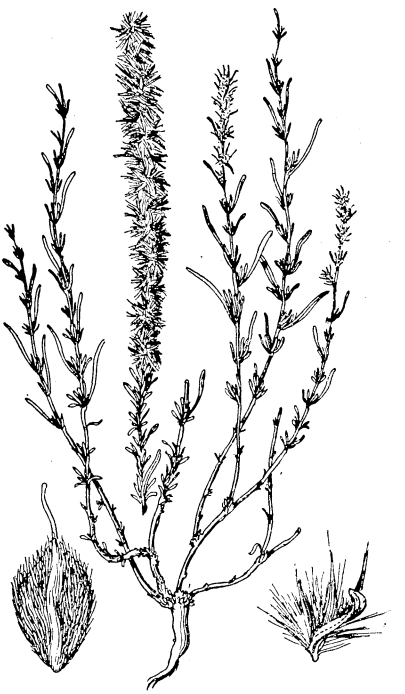

FIG. 3.—"Winter fat," or sweet sage. (*Eurotia lanata.*) Abundant from Montana to Arizona.

The preservation of our native forage plants is of first importance. The introduction of foreign ones should be secondary. There is abundant proof for the statement that the plants native to any soil or any climate are better suited and better adapted to that particular location than plants from another climate or that grew on another kind of soil. The American species of sweet sage and winter fat are thoroughly acclimated, and the seed can be readily and cheaply procured. We do not need to send to Australia or to South Africa or to Argentina to find forage plants that will grow on alkaline soil.

The indiscriminate introduction of new plants into any country is always fraught with danger, especially when such plants are of a known weedy character. The Russian thistle belongs to the same plant family as the Australian saltbush. This weed in its early stage furnishes

good forage for sheep and cattle, and while it may be a blessing on a sheep ranch, it is an undisguised curse on the prairie hay lands and in cultivated fields. Considerable caution should therefore be exercised with these foreign saltbushes lest they spread to fields and places where they are not wanted.

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Approved:
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